

BSCS

PROGRAMMING USING

C++

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Programming in C++

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Q:Write a Program to Print "this is my first program" using cout?

```
#include<iostream.h>
#include<conio.h>
void main()
{
clrscr();
cout<<"this is my first program";
getch();
}
```

*****-----*****

Q:Write a Program to convert the fahrenheit temprature in to centigrades temprature?

```
#include<iostream.h>
#include<conio.h>
void main(void)
{
clrscr();
float ct, ft;
cout<<"Enter the fahrenheit Temprature ";
cin>>ft;
ct=(ft-32)*5/9;
cout<<"thed temp ius "<<ct;
getch();
}
```

*****-----*****

Q:WRITE A PROGRAM TO FIND CIRCUMFERENCE OF CIRCLE?

```
#include<iostream.h>
#include<conio.h>
void main()
{
clrscr();
float r, c, p = 3.14;
cout<<"ENTER THE RADIUS OF THE CIRCLE";
cin>>r;
c = r * p * 2;
cout<<"the cicumference of the circle is"<<c;
getch();
}
```

*****-----*****

Q:WRITE A PROGRAM TO FIND AVERAGE OF THE THREE NUMBERS?FIRST STORE THE INPUT FROM THE USER?

```
#include<iostream.h>

#include<conio.h>
void main()
{
clrscr();
float sb1, sb2, sb3;
long float av;
cout<<"\nEnter subject1 marks  ";
```

```

cin>>sb1;
cout<<"\nEnter sbject2 marks  ";
cin>>sb2;
cout<<"\nEnter sbject3 marks  ";
cin>>sb3;
av = (sb1+sb2+sb3)/3;
cout<<"\n\n Average of the entered marks is= "<<av;
getch();
}

```

*****-----*****

Q:Write a Program to Print "Pakistan Zindabad" then print "ok" on next line,if first Value is Greater than the Second value, by initializing the value?

```

#include<iostream.h>
#include<conio.h>
void main()
{
clrscr();
int a,b;
a=20;
b=15;
if(a>b)
cout<<"Pakistan Zindad\n";
cout<<"Ok";
getch();
}

```

*****-----*****

Q:Write a Program to Print "Pakistan Zindabad" then print "ok" on next line,if first Value is Greater than the Second value, by taking input from user?

```

#include<iostream.h>
#include<conio.h>
void main()
{
clrscr();
int a,b;
cout<<"Enter 1st Value= ";
cin>>a;
cout<<"Enter 2nd value= ";
cin>>b;
if(a>b)
cout<<"Pakistan Zindagad\n";
cout<<"Ok";
getch();
}

```

*****-----*****

Q:Write a Program to take input integer number from user, then print the given number is even or odd? By using if, else condition.

```

#include<iostream.h>
#include<conio.h>
void main()

{
clrscr();
int n;
cout<<"Enter Integer Value= ";

```

```

cin>>n;
if (n%2==0)
cout<<"The Given Value is Even";
else
cout<<"The Given Value is Odd";
getch();
}

```

*****-----*****

Q:Write a Program to take input integer number from user, then print the given number is even or odd? By using if, else condition.

```

#include<iostream.h>
#include<conio.h>
void main()
{
clrscr();
int a,b;
cout<<"Enter 1st Integer";
cin>>a;
if (a%2==0)
cout<<"The Given Integer is Even";
else
cout<<"The Given Integer is Odd";
getch();
}

```

*****-----*****

Q:Write a Program to make scientific calculator like that, choice 1 for division, 2 for multiplication,3 for addition,4 for subtraction, 5 for remainder,6 for power,7 for square root? By using else if condition.

```

#include<iostream.h>
#include<conio.h>
#include<math.h>
void main(void)
{
clrscr();
long int f, s , i;
cout<<"enter any no \n";
cin>>f;
cout<<"enter aother no \n";
cin>>s;
cout<<"Enter your choice\n 1 for division \n 2 for multiplication\n 3 for\n addition\n 4 for subtraction\n 5 for remainder\n 6 for power\n 7 for square root\n";
cin>>i;
clrscr();
if(i==1)
cout<<"\n the division of two no is "<<(f/s);
else if (i==2)
cout<<"\n the multiplication of two no is "<<(f*s);
else if (i==3)
cout<<"\n the addition of two no is "<<(f+s);
else if (i==4)
cout<<"\n subtraction of two no is "<<(f-s);
else if (i==5)

```

```

cout<<"\n    remainder is    "<<(f%s);
else if (i==6)
cout<<"        the power is "<<pow(f,s);
else if (i==7)
cout<<"\n    squart root is "<<sqrt(f);
else
cout<<"Invalid Input";
getch();
}

```

*****-----*****

Q:Write a Program to Print the electricity bill of current Meter reading using follong criteria. Units are less than 300, price per unit is 3Rs and more than 300 units also add surcharge 5% ?

```

#include<iostream.h>
#include<conio.h>
void main()
{
clrscr();
int u, b, p, t, t1;
cout<<"\nEnter your preovious units  ";
cin>>b;
cout<<"\nEnter your present units  ";
cin>>t;
u=t-b;
    if (u<300)
    {
        cout<<"\nyour total bill is  "<<u*3.0;
    }
    else
    {
        p = u*3.5;
        t1 = (p*5)/100;
        cout<<"your total bill    i s "<<t1+p;
    }
    getch();
}

```

*****-----*****

Q:Write a Program to take input integer number from user, then print the given number is even or add? By using if, else condition.

```

#include<iostream.h>
#include<conio.h>
void main()
{
clrscr();
int s1, s2, s3, ag;
char grade;
cout<<"\nenter marks of sub 1  ";
cin>>s1;
cout<<"\nenter marks of sub 2  ";
cin>>s2;
cout<<"\nenter marks of sub 3  ";
cin>>s3;
clrscr();
ag =(s1+s2+s3)/3;

```

```

if(ag>=33)
    if (ag>=50)
        if (ag>=80)
            grade='A';
        else
            grade='B';
    else
        grade='C';
    else
        grade='F';

    cout<<"\nYour over all grades are "<<grade;

getch();
}

```

*****-----*****

Q:Write a Program to Print "Pakistan five times", using while loop.

```

#include<iostream.h>
#include<conio.h>
void main()
{
    clrscr();
    int n=1;
    while(n<=5)
    {
        cout<<"\n Pakistan";
        n++;
    }
    getch();
}

```

*****-----*****

Q:Write a Program to Print the reverse order value of given value? using While loop.

```

#include<iostream.h>
#include<conio.h>
void main()
{
    clrscr();
    int i,rev;
    cout<<"Enter a number= ";
    cin>>i;
    cout<<"The Reverse number is= ";
    while(i/10!=0)
    {
        rev=i%10;
        cout<<rev;
        i=i/10;
    }
    cout<<i;
    getch();
}
Program hint
// 321/10= 32 , remainder= 1

```



```
//now cocient divide with 10 32/10=3 remainder= 2
```

```
// now coient divide with 10 3/10=0 remainder= 3
```

```
*****-----*****
```

Q:Write a Program to Print the first 5 Odd number and the sum of all odd number using While loop.

```
#include<iostream.h>
```

```
#include<conio.h>
```

```
void main()
```

```
{
```

```
clrscr();
```

```
int n,c;
```

```
n=1;
```

```
c=0;
```

```
while(n<=10)
```

```
{
```

```
c=c+n;
```

```
cout<<n<<" is odd number\n";
```

```
n=n+2;
```

```
}
```

```
cout<< "Sum of Total Odd Numbers is= " << c;
```

```
getch();
```

```
}
```

```
*****-----*****
```

Q:Write a Program to Print Table of given Value from which is given by user and print the table by using while loop.

```
#include<iostream.h>
```

```
#include<conio.h>
```

```
void main()
```

```
{
```

```
clrscr();
```

```
int n,c, res;
```

```
cout<<"Enter The Table Value=";
```

```
cin>>n;
```

```
c=1;
```

```
while(c<=10)
```

```
{
```

```
res=n*c;
```

```
cout<<n<<"*"<<c<<"="<< res<<"\n";
```

```
c++;
```

```
}
```

```
getch();
```

```
}
```

Q:Write a Program by print

```
1 2 3 4 5
```

```
1 3 5 7 9
```

```
1 4 7 10 13
```

By using nested while loop.

```
#include<iostream.h>
```

```
#include<conio.h>
```

```
void main()
```

```
{
```

```
clrscr();
```

```
int u,i,n;
```

```

u=1
while(u<=3)
{
    i=1;
    n=1;
    while(i<=5)
    {
        cout<<"\t"<<n;
        n=n+u;
        i++;
    }
}

```

*****-----*****

Q:Write a Program to Print Factorial of the user given value using do while loop?

```

#include<iostream.h>
#include<conio.h>
void main()
{
    clrscr();
    int n,fact;
    cout<<"Enter the number for factorial= ";
    cin>>n;
    if(n==0)
        cout<<"Factorial is=1";
    else
    {
        fact=1;
        do
        {
            fact=fact*n;
            n--;
        }while(n>=1);
        cout<<"Factorial is= "<<fact;
    }
    getch();
}

```

*****-----*****

Q:Write a Program to Print Prime numbers by using do while loop.

```

#include<iostream.h>
#include<stdlib.h>
#include<math.h>
#include<conio.h>
void main()
{
    clrscr();
    unsigned long int n,i,tmp;
    cout<<"Enter a number to be checked= ";
    cin>>n;
    if(n==1)
        cout<<n<<"is not a Prime number";
    else
    {
        i=2;
        tmp=sqrt(n);
    }
}

```

```

do
{
    if(n!=2)
    if(n%i==0)
    {
        cout<<n<<"is not a Prime number";
        getch();
        exit(1);
    }
    i++;
}while(i<=tmp);
cout<<n<<" is a Prime number";
}
getch();
}

```

*****_*****

Q:Write a Program to Print Prime numbers by using for loop.

```

#include<iostream.h>
#include<conio.h>
void main()
{
    clrscr();
    int n,i;
    cout<<"enter number";
    cin>>n;
    if((n==0)||(n==1))
    cout<<n<<"not prime";
    else
    {
        for(i=2;i<n;i++)
        {
            if(n%i==0)
            {
                cout<<n<<"is not prime";
                break;
            }
        }
        if(i==n)
        cout<<n<<"is prime";
    }
    getch();
}

```

*****_*****

Q:Write a Program by using for loop to Print the below values.

```

1
1 2
1 2 3
1 2 3 4
1 2 3 4 5

```

```

#include<iostream.h>
#include<conio.h>
void main()
{
    clrscr();

```

```

int i, u;
for(i=1; i<=5; i++)
{
    for(u=1; u<=i; u++)
    {
        cout<<u<<"\t";
    }
    cout<<endl;
}
getch();
}

```

*****-----*****

Q:Write a Program by using for loop to Print the stars like.

```

*
* *
* * *
* * * *
* * * * *

```

```

#include<iostream.h>
#include<conio.h>
void main()
{
    clrscr();
    int i, u;
    for(i=1; i<=5; i++)
    {
        for(u=1; u<=i; u++)
        {
            cout<<"*"<<"\t";
        }
        cout<<endl;
    }
    getch();
}

```

*****-----*****

Q:Write a Program by print

```

1 2 3 4 5
1 3 5 7 9
1 4 7 10 13

```

By using nested while loop.

```

#include<iostream.h>
#include<conio.h>
void main()
{
    clrscr();
    int u,i,n;
    u=1
    while(u<=3)
    {
        i=1;
        n=1;
        while(i<=5)
        {

```

```

    cout<<"\t"<<n;
    n=n+u;
    i++;
}

```

*****-----*****

Q:Write a Program to make scientific calculator like that, choice 1 for diviusion, 2 for multiplication,3 for addition,4 for subtraction, 5 for remainder,6 for power,7 for square root? By using switch condition.

```

#include<iostream.h>
#include<conio.h>
#include<math.h>
#include<ctype.h>
void main()
{
    int fv,sv,i;
    char ch;
    do
    {
        clrscr();
        cout<<"Enter First Value= ";
        cin>>fv;
        cout<<"Enttter Second Value= ";
        cin>>sv;
        cout<<"Enter your choise:\n 1 for Division:\n 2 for Multiplication:\n 3 for
addition:\n 4 for addition \n 5 for Remainder:\n 6 for Power: \n 7 for square
root:\n";
        cin>>i;
        switch(i)
        {
            case 1:
                cout<<"Division is= "<<fv/sv;
                break;
            case 2:
                cout<<"Multiplication is= "<<fv*sv;
                break;
            case 3:
                cout<<"Addition is= "<<fv+sv;
                break;
            case 4:
                cout<<"Substraction is= "<<fv-sv;
                break;
            case 5:
                cout<<"Remainder is= "<<fv%sv;
                break;
            case 6:
                cout<<"Power is= "<<pow(fv,sv);
                break;
            case 7:
                cout<<"Square Root is= "<<sqrt(fv);
                break;
            default:
                cout<<"Invalid Choice";
        }
        cout<<"press 'Y' to continue, Press 'N' to exit i.e (Y/N)";
        ch=getche();
    }
}

```

```

    }while(ch!=toupper('n'));
//toupper is for only exit in capital N
// }while(ch!='n');
    getch();
}

```

*****-----*****

Q:Write a function of sum by first initializing values.

```

#include<iostream.h>
#include<conio.h>
int sum(int x,int y)
{
    return (x+y);
}
void main()
{
    clrscr();
    cout<<"Sum is ="<< sum(10,25);
    getch();
}

```

*****-----*****

Q:Write a program of array to add 5 values and average of all the array element.

```

#include<iostream.h>
#include<conio.h>
void main()
{
    clrscr();
    int a[5],i;
    for(i=0; i<5; i++)
    {
        cout<<"Enter variable in element a["<<i<<"]= ";
        cin>>a[i];
    }
    sum=avg=0;
    for(i=0; i<5; i++)
    {
        sum=a[i]+sum;
    }
    cout<<"Sum of array elements="<<sum<<"\n";
    avg=sum/5;
    cout<<"Average of array elements="<<avg;
    getch();
}

```

*****-----*****

Q:Write a program of array to find Maximum Values ? First take input from user.

```

#include<iostream.h>
#include<conio.h>
void main()
{
    clrscr();
    int a[5],i,max;
    for(i=0; i<5; i++)
    {
        cout<<"Enter variable in element a["<<i<<"]= ";
        cin>>a[i];
    }
}

```

```

max=0;
for(i=0; i<5; i++)
{
    if(max<a[i])
    max=a[i];
}
cout<<"Maximum value is= "<<max;
getch();
}

```

*****-----*****

Q:Write a program of multiple 3 array and Print the sum of 1st and 2nd array in 3rd array.

```

#include<iostream.h>
#include<conio.h>
void main()
{
    clrscr();
    int a[5],b[5],sum[5],i;
    cout<<"Enter Values in first Array"<<"\n";
    for(i=0; i<5; i++)
    {
        cout<<"Enter variable in element a["<<i<<"]=" ";
        cin>>a[i];
    }
    cout<<"Enter Values in second Array"<<"\n";
    for(i=0; i<5; i++)
    {
        cout<<"Enter variable in element b["<<i<<"]=" ";
        cin>>b[i];
    }
    cout<<"Sum of first and second Array"<<"\n";
    for(i=0; i<5; i++)
    {
        sum[i]=a[i]+b[i];
        cout<<a[i]<<"+"<<b[i]<<"="<<sum[i]<<"\n";
    }
    getch();
}

```

*****-----*****

Q:Write a program of multiple 3 array and Print the sum of 1st and 2nd array in 3rd array.

```

#include<iostream.h>
#include<conio.h>
void main()
{
    clrscr();
    int i=0;
    //char first[15]={ 'p','a','k','i','s','t','a','n','\0'};
    char a[15]="pakistan";
    //this upper char create automatically null value, but it upper case we add \0
    at the end for nul lvalue
    cout<<a;
    getch();
}

```

*****-----*****

Q:Write a program of Array by using string, with null and value.

```
#include<iostream.h>
#include<conio.h>
void main()
{
clrscr();
int i=0;
//char first[15]={'p','a','k','i','s','t','a','n','\0'};
char a[15]="pakistan";
//this upper char create automatically null value, but it upper case we add \0
at the end for null value
cout<<a;
getch();
}
```

*****-----*****

Q:Write a program of Array by using characters, first initialize, then swap and then print the characters.

```
#include<iostream.h>
#include<conio.h>
void main()
{
clrscr();
int i=0;
char first[8]={'p','a','k','i','s','t','a','n'};
char second[8];
for(i=0; i<8; i++)
{
second[i]=first[i];
cout<<second[i];
}
getch();
}
```

*****-----*****

Q:Write a program of string by print "Pakistan" that travel from top to bottom.

```
#include<iostream.h>
#include<conio.h>
#include<dos.h>
void main()
{
clrscr();
char str[15]={'p','a','k','i','s','t','a','n','\0'};
int i,l;
gotoxy(32,1);
//x is column,y is row
cout<<str;
for(i=0; str[i]!='\0'; i++)
{
for(l=1; l<=22; l++)
{
gotoxy(i+32,l);
cout<<str[i];
gotoxy(i+32,l);
delay(50);
cout<<" ";
}
}
```



```

    gotoxy(i+32,1);
    cout<<str[i];
}
getch();
}

```

*****-----*****

Q:Write a program of string input from user and print it by swapping the values.

```

#include<iostream.h>
#include<conio.h>
#include<dos.h>
void main()
{
    clrscr();
    char str1[15],str2[15];
    int i;
    cout<<"Enter the string value in str1:";
    cin>>str1;
    //copy str1 to str2
    for(i=0; str1[i]!='\0'; i++)
        str2[i]=str1[i];
    str2[i]='\0';
    cout<<str2;
    getch();
}

```

*****-----*****

Function Programs

Q:Writing a program to print a message on the screen. using a function.

```

#include<iostream.h>
#include<conio.h>
void display();
void main()
{
    clrscr();
    display();
    cout<<"Ok";
    getch();
}
void display()
{
    cout<<"It Is My First Function Program \n";
}

```

*****-----*****

Q:Write a Program to Add two integer by initialize there values.

```

#include<iostream.h>
#include<conio.h>
int sum(int x, int y);
void main()
{
    clrscr();
    cout<<"Sum Is:"<<sum(10,30);
    getch();
}
int sum(int x, int y)
{

```

```
return (x+y);
}
```

*****-----*****

Q:Write a Program to Add two integer taking input from users.

```
#include<iostream.h>
#include<conio.h>
int sum(int x, int y);
void main()
{
clrscr();
int a,b;
cout<<"Enter the value of A:";
cin>>a;
cout<<"Enter the value of B:";
cin>>b;
cout<<"Sum:"<<sum(a,b);
getch();
}
int sum(int x, int y)
{
return (x+y);
}
```

*****-----*****

Q:Write a Program to make scientific calculator like that, choice 1 for diviusion, 2 for multiplication,3 for addition,4 for subtraction, 5 for remainder,6 for power,7 for square root? By function.

```
#include<iostream.h>
#include<conio.h>
#include<math.h>
void cal(int fv, int i, int sv);
void main()
{
int x,y,op;
clrscr();
cout<<"\n Enter First Value:";
cin>>x;
cout<<"\n Enter Second Value:";
cin>>y;
cout<<"\n Enter Your Choice:\n 1 For Addition:\n 2 For Subtraction:\n 3 For
Multiplication:\n 4 For Division:\n 5 For Remainder:\n 6 For Power:\n 7 For
Square Root:\n";
cin>>op;
cal(x,op,y);
getch();
}
void cal(int fv, int i, int sv)
{
switch(i)
{
case 1:
cout<<"Addition Is ="<<fv+sv;
break;
case 2:
```

```

cout<<"Subtraction Is ="<<fv-sv;
break;
case 3:
cout<<"Multiplication Is ="<<fv*sv;
break;
case 4:
cout<<"Division Is ="<<fv/sv;
break;
case 5:
cout<<"Remainder Is ="<<fv%sv;
break;
case 6:
cout<<"Power Is ="<<pow(fv,sv);
break;
case 7:
cout<<"Sqare Root Is ="<<sqrt(fv);
break;
default:
cout<<"Unknown Choice";
}
}

```

*****-----*****

Q:Write a program by Passing two numbers as arguments to the function body, comparing the numbers in the function body and printing the greater number on the screen.

```

#include<iostream.h>
#include<conio.h>
void comp(int x, int y);
void main()
{
clrscr();
int a,b;
cout<<"Enter First value:";
cin>>a;
cout<<"Enter Second value:";
cin>>b;
comp(a,b);
getch();
}
void comp(int x, int y)
{
(x>y)?cout<<"First Value Is Greater":cout<<"Second Value Is Greater";
}

```

*****-----*****

Q:Swaping the values of two variables by using Reference arguments in the function.

```

#include<iostream.h>
#include<conio.h>
void swap(int &x, int &y);
void main()
{
clrscr();
int a,b;
cout<<"Enter the value of A:";
cin>>a;

```

```

cout<<"Enter the value of B:";
cin>>b;
swap(a,b);
cout<<"Values After Swaping:"<<endl;
cout<<"Value of A Is:"<<a<<endl;
cout<<"Value of B Is:"<<b<<endl;
cout<<"Ok";
getch();
}
void swap(int &x, int &y)
{
    int t;
    t=x;
    x=y;
    y=t;
}
*****-----*****

```

Q:Swaping the values of two variables.

```

#include<iostream.h>
#include<conio.h>
int sum(int x, int y);
void main()
{
    clrscr();
    int a,b;
    a=87;
    b=9;
    cout<<"Enter the value of A:"<<a<<endl;
    cout<<"Enter the value of B:"<<b<<endl;
    cout<<"Sum Is:"<<sum(a,b)<<endl;
    cout<<"Enter the value of A:"<<a<<endl;
    cout<<"Enter the value of B:"<<b<<endl;
    getch();
}
int sum(int x, int y)
{
    int sum;
    sum=x+y;
    x=0;
    y=0;
    return sum;
}
*****-----*****

```

Q: Two variables Pass their values and then print on screen.

```

#include<iostream.h>
#include<conio.h>
int sum(int x, int y);
void main()
{
    clrscr();
    int a,b;
    a=87;
    b=9;
    cout<<"Enter the value of A:"<<a<<endl;
    cout<<"Enter the value of B:"<<b<<endl;

```

```

cout<<"Sum Is:"<<sum(a,b)<<endl;
cout<<"Enter the value of A:"<<a<<endl;
cout<<"Enter the value of B:"<<b<<endl;
getch();
}
int sum(int x, int y)
{
    int sum;
    sum=x+y;
    x=0;
    y=0;
    return sum;
}

```

*****-----*****

Q:Write a Program to Print the Maximum number that entered in array. By using function.

```

#include<iostream.h>
#include<conio.h>
void maxi(float x[5]);
void main()
{
    clrscr();
    float a[5];
    int i;
    for(i=0;i<5;i++)
    {
        cout<<"Enter Value In Element a["<<i<<"]=";
        cin>>a[i];
    }
    maxi(a);
    getch();
}
void maxi(float x[5])
{
    float max;
    max=0.0;
    for(int i=0;i<5;i++)
    {
        if(max<x[i])
            max=x[i];
    }
    cout<<"Maximum Value Is="<<max;
}

```

*****-----*****

Q:Write a Program to Print sum to two array in third array. By using function.

```

#include<iostream.h>
#include<conio.h>
void sumar(int a[5],int b[5],int c[5]);
void main()
{
    clrscr();
    int x[5],y[5],z[5];
    sumar(x,y,z);
    getch();
}

```

```

void sumar(int a[5],int b[5],int c[5])
{
    int i;
    for(i=0;i<=4;i++)
    {
        cout<<"Enter Values To The Element a["<<i<<"] Of First Array:"<<endl;
        cin>>a[i];
    }
    cout<<"\n";
    for(i=0;i<=4;i++)
    {
        cout<<"Enter Values To The Element b["<<i<<"] Of Second Array:"<<endl;
        cin>>b[i];
    }
    for(i=0;i<=4;i++)
    {
        c[i] = a[i]+b[i];
        cout<<"\t"<<a[i]<<"+"<<b[i]<<"=" <<c[i]<<endl;
        cout<<"c["<<i<<"]="<<c[i]<<endl;
    }
}

```

*****-----*****

Q:Write a Program to Print 10, 20, 30 then ok. By using function.

```

#include<iostream.h>
#include<conio.h>
int temp(int x);
void main()
{
    clrscr();
    int i;
    for(i=1;i<=3;i++)
        cout<<temp(i)<<endl;
    cout<<"Ok";
    getch();
}
int temp(int x)
{
    static int co=10;
    co=co*x;
    return (co);
}

```

*****-----*****

Q: Write a Program for finding the sum of two numbers using "inline function".

```

#include<iostream.h>
#include<conio.h>
#include<iostream.h>
#include<conio.h>
inline sum(int x, int y)
{
    return (x+y);
}
void main()
{
    clrscr();
    int a,b;

```

```

cout<<"Enter the value of A:";
cin>>a;
cout<<"Enter the value of B:";
cin>>b;
cout<<"Sum:"<<sum(a,b);
getch();
}

```

*****-----*****

Recursion:

In "C++" functions can call themselves. A function is recursive if a statement in the body of the function calls itself.

Q:write a function which calculates factorial of an integer.

```

#include<iostream.h>
#include<conio.h>
unsigned long int fact(unsigned long int n);
void main()
{
clrscr();
unsigned long int num;
cout<<"Enter A Number:";
cin>>num;
cout<<"Factorial Of "<<num<<" Is"<<fact(num);
getch();
}
unsigned long int fact(unsigned long int n)
{
if(n<=1)
return 1;
else
return n*fact(n-1);
}

```

*****-----*****

Structures

Q:Write a Program by Inputting data into and then printing data from the members of a Structre.

```

#include<iostream.h>
#include<conio.h>
struct student
{
char name[15];
int age;
};
void main()
{
clrscr();
student s;
cout<<"Enter Name of the Student:";
cin>>s.name;
cout<<"Enter age of the Student:";
cin>>s.age;
cout<<"Output from structure:"<<endl;
cout<<"Name:"<<s.name<<endl;
cout<<"Age:"<<s.age<<endl;
getch();
}

```

*****-----*****

Q: write a program to copy one structure variable to another variable and then to print it on the screen without using any built in function.

```
#include<iostream.h>
#include<conio.h>
struct copyvar
{
    char name[15];
    int age;
};
void main()
{
    clrscr();
    copyvar s1,s2;
    int i;
    cout<<"Enter Name of the Student:";
    cin>>s1.name;
    cout<<"Enter age of the Student:";
    cin>>s1.age;
    s2.age=s1.age;
    for(i=0;s1.name[i]!='\0';i++)
        s2.name[i]=s1.name[i];
    s2.name[i]='\0';
    cout<<"Name:"<<s2.name<<endl;
    cout<<"Age:"<<s2.age<<endl;
    getch();
}
```

*****-----*****

Q: write a program of structure by initializing the values then print it on the screen. Must Use character and integer.

```
#include<iostream.h>
#include<iostream.h>
#include<conio.h>
void main()
{
    struct rec
    {
        char name[15];
        int s1,s2,s3,s4;
    };

    rec st01={"irfan",91,92,89,98};
    int total;
    total=st01.s1+st01.s2+st01.s3+st01.s4;
    clrscr();
    cout<<"Name of the Student:"<<st01.name<<endl;
    cout<<"Marks In Subject1:"<<st01.s1<<endl;
    cout<<"Marks In Subject2:"<<st01.s2<<endl;
    cout<<"Marks In Subject3:"<<st01.s3<<endl;
    cout<<"Marks In Subject4:"<<st01.s4<<endl;
    cout<<"Total Marks:"<<total<<endl;
    getch();
}
```

*****-----*****

Q: write a program of structure by using array for input the marks of 4 subject. Also mention the name of student and total marks.

```
#include<iostream.h>
#include<conio.h>
struct rec
{
char s_name[15];
int sub[4];
int total;
};
void main()
{
rec result;
int i,j;
clrscr();
cout<<"Enter student name:";
cin>>result.s_name;
for(i=0;i<=3;i++)
{
cout<<"Enter marks of subject"<<i+1<<" ";
cin>>result.sub[i];
}
result.total=result.sub[0]+result.sub[1]+result.sub[2]+result.sub[3];
clrscr();
cout<<"Output"<<endl<<endl;
cout<<"Name of student:"<<result.s_name<<endl;
for(i=0;i<=3;i++)
cout<<"marks of subject"<<i+1<<" : "<<result.sub[i]<<endl;
cout<<"Total marks="<<result.total;
getch();
}
```

*****-----*****

Q: write a program of structure by swapping the two numbers. Output screen show both the values, before and after swapping.

```
#include<iostream.h>
#include<conio.h>
struct swap
{
int num,temp;
}s1,s2;
void main()
{
clrscr();
cout<<"Enter First Number:";
cin>>s1.num;
cout<<"Enter Second Number:";
cin>>s2.num;
cout<<"Before Swapping:"<<endl;
cout<<"First Number is : "<<s1.num<<endl;
cout<<"Second Number is : "<<s2.num<<endl;
s1.temp=s1.num;
s2.temp=s2.num;
s1.num=s2.temp;
s2.num=s1.temp;
cout<<"value after swapping : "<<endl;
```

```

cout<<"First Number is ="<<s1.num<<endl;
cout<<"Second Number is ="<<s2.num<<endl;
getch();
}

```

*****-----*****

Q: Write a program to enter data into a structure variable of array type that has 10 elements and each record contains three fields. Also show the Output of entered Records.

```

#include<iostream.h>
#include<conio.h>
void main()
{
    struct result
    {
        char s_name[15];
        float marks;
        char city[25];
    };
    result a[10];
    int i;
    clrscr();
    for(i=0;i<=9;i++)
    {
        cout<<"Enter Record"<<i+1<<": "<<endl;
        cout<<"Enter name of student:";
        cin>>a[i].s_name;
        cout<<"Enter marks of student:";
        cin>>a[i].marks;
        cout<<"Enter city of student:";
        cin>>a[i].city;
    }
    cout<<"Output Records"<<endl;
    for(i=0;i<=9;i++)
    {
        cout<<"Rec #"<<i+1<<" "<<a[i].s_name<<" ";
        cout<<a[i].marks <<" ";
        cout<<a[i].city <<" "<<endl;
    }
    getch();
}

```

*****-----*****

Q: write a program to assign data to array of structure variables at the time of its declaration and print it on the screen.

```

#include<iostream.h>
#include<conio.h>
struct student
{
    char code[10];
    char name[15];
    float marks;
};

void main()
{

```

```

student rec[3]={{"man-1", "Asim", 45.9}, {"acc-1", "M.Rashid", 45.9}, {"fac-
1", "M.Babar", 55.8}};
int i;
clrscr();
for(i=0;i<=2;i++)
cout<<"Code:"<<rec[i].code<<"\t"<<"Name:"<<rec[i].name<<"\t"<<"Marks:"<<rec[i].m
arks<<endl;
getch();
}

```

*****-----*****

Q:Write a program that uses Nested Structure, by initializing student name father name, age, city of student

```

#include<iostream.h>
#include<conio.h>
struct info
{
    char s_name[15];
    char f_name[15];
    char city[15];
    int age;
};
struct p_data
{
    info s1,s2;
    float x;
};
void main()
{
    p_data
    rec={{ "M.Naseem", "A.Majid", "Faisalabad", 20}, {"M.Zeeshan", "M.Tahir", "Lahore", 30},
    6.9};
    clrscr();
    cout<<"First Record Is"<<endl;
    cout<<"Name          : "<<rec.s1.s_name<<endl;
    cout<<"S/O           : "<<rec.s1.f_name<<endl;
    cout<<"Address        : "<<rec.s1.city<<endl;
    cout<<"Age            : "<<rec.s1.age<<endl<<endl;
    cout<<"Second Record Is"<<endl;
    cout<<"Name          : "<<rec.s2.s_name<<endl;
    cout<<"S/O           : "<<rec.s2.f_name<<endl;
    cout<<"Address        : "<<rec.s2.city<<endl;
    cout<<"Age            : "<<rec.s2.age<<endl;
    getch();
}

```

*****-----*****

Q: Write a program for maintaining the student record use name, father name, age and city of student with nested structures, input data into the structure variables "rec" and then print it on the computer screen.

```

#include<iostream.h>
#include<conio.h>
void main()
{
    struct info
    {
        char s_name[15];

```

```

    char f_name[15];
    char city[15];
    int age;
};
struct group
{
    info s1,s2;
    float x;
};
group rec;
clrscr();
cout<<"Enter Data For First Record"<<endl;
cout<<"Enter Name          : ";
cin>>rec.s1.s_name;
cout<<"Enter Father's Name : ";
cin>>rec.s1.f_name;
cout<<"Enter Name Of City : ";
cin>>rec.s1.city;
cout<<"Enter Age           : ";
cin>>rec.s1.age;
cout<<"Enter Data For Second Record"<<endl;
cout<<"Enter Name          : ";
cin>>rec.s2.s_name;
cout<<"Enter Father's Name : ";
cin>>rec.s2.f_name;
cout<<"Enter Name Of City : ";
cin>>rec.s2.city;
cout<<"Enter Age           : ";
cin>>rec.s2.age;
cout<<"First Record Is"<<endl;
cout<<"Name          : "<<rec.s1.s_name<<endl;
cout<<"Father Name : "<<rec.s1.f_name<<endl;
cout<<"City          : "<<rec.s1.city<<endl;
cout<<"Age           : "<<rec.s1.age<<endl<<endl;
cout<<"Second Record Is"<<endl;
cout<<"Name          : "<<rec.s2.s_name<<endl;
cout<<"Father Name : "<<rec.s2.f_name<<endl;
cout<<"City          : "<<rec.s2.city<<endl;
cout<<"Age           : "<<rec.s2.age<<endl;
getch();
}

```

*****_*****

Pointers

Q:Write a program to assign two values to two integer variables "a" and "b". Assign the memory addresses of variables "a" and "b" to pointer variables "x" and "y", respectively. Print out the memory addresses of variables "a" and "b" through their pointer variables.

```

#include<iostream.h>
#include<conio.h>
void main()
{
    clrscr();
    int a,b;
    int *x,*y;

```

```

a=126;
b=19;
x=&a;
y=&b;
cout<<"Memory Address Of Variable a="<<x<<endl;
cout<<"Memory Address Of Variable b="<<y<<endl;
getch();
}

```

*****-----*****

Q:Write a program to assign a value to a variable using its pointer variable. Print out the value using the variable name and also print out the memory address of the variable using the pointer variable.

```

#include<iostream.h>
#include<conio.h>
void main()
{
    clrscr();
    int a;
    int *p;
    p=&a;
    cout<<"Enter Data Value=";
    cin>>*p;
    cout<<"Value Of Variable ="<<a<<endl;
    cout<<"Memory Address Of Variable ="<<p<<endl;
    getch();
}

```

*****-----*****

Q:Writ a program to input data into an array and then to print on the computer screen by using pointer notation.

```

#include<iostream.h>
#include<conio.h>
void main()
{
    clrscr();
    int arr[5],*p,i;
    p=arr;
    cout<<"Enter Values Into An Array="<<endl;
    for(i=0;i<5;i++)
        cin>>arr[i];
    cout<<"Values From Array="<<endl;
    for(i=0;i<5;i++)
        cout<<*p++<<endl;
    getch();
}

```

*****-----*****

Q:Writ a program to input data into an array and then to print the maximum number on the screen by using pointer.

```

#include<iostream.h>
#include<conio.h>
void main()
{
    clrscr();
    int arr[5],*p,i,max;
    p=arr;

```

```

cout<<"Enter Values Into Array="<<endl;
for(i=0;i<5;i++)
cin>>arr[i];
max=*p;
for(i=0;i<5;i++)
{
    *p++;
    if(max<*p)
    max=*p;
}

cout<<"Maximum Value is="<<max;
getch();
}

```

*****-----*****

Q.4. Write a C++ code that displays the Even Location's memory address of an array.

[0]	[1]	[2]	[3]
0x0007	0x0008	0x0009	0x0010
e.g. 0x0007,0x0009			

```

#include <iostream.h>
#include <conio.h>
void main()
{
    int i,*p;
    int k[6]={12,34,56,78,99,12};
    for(i=0;i<6;i++)
    {
        p=&k[i];
        if(i%2==0)
        {
            cout<<p;
            cout<<"\t";
        }
    }
    getch();
}

```

*****-----*****

Q: write a program to Passing Pointers as Arguments to a Function.

```

#include<iostream.h>
#include<conio.h>
void temp(int *x,int *y);
void main()
{
    clrscr();
    int a,b;
    a=10;
    b=20;
    temp(&a,&b);
    cout<<"Value Of a="<<a<<endl;
    cout<<"Value Of b="<<b<<endl;
    cout<<"Ok";
}

```

```

    getch();
}
void temp(int *x,int *y)
{
    *x=*x+100;
    *y=*y+100;
}

```

*****-----*****

Q:Swaping two values by passing pointers as arguments to the function.

```

#include<iostream.h>
#include<conio.h>
void swap(int *x, int *y);
void main()
{
    clrscr();
    int a,b;
    cout<<"Enter the value of A:";
    cin>>a;
    cout<<"Enter the value of B:";
    cin>>b;
    swap(&a,&b);
    cout<<"Values After Swaping:"<<endl;
    cout<<"Value of A Is:"<<a<<endl;
    cout<<"Value of B Is:"<<b<<endl;
    cout<<"Ok";
    getch();
}
void swap(int *x, int *y)
{
    int t;
    t=*x;
    *x=*y;
    *y=t;
}

```

*****-----*****

Q:Write a program to convert kilogram into grams by passing pointers as arguments to the function.

```

#include<iostream.h>
#include<conio.h>
void grams(float *x);
void main()
{
    clrscr();
    float kg,*gm;
    gm=&kg;
    cout<<"Enter Kilograms:";
    cin>>kg;
    grams(&kg);
    cout<<"Calculated Result In Grams:"<<*gm<<endl;
    getch();
}
void grams(float *x)
{
    *x=*x*1000;
}

```

*****-----*****

Q: Printing the characters of a string one by one by using pointers.

```
#include<iostream.h>
#include<conio.h>
void strprint(char *x);
void main()
{
    clrscr();
    char st[]="PAKISTAN";
    strprint(st);
    cout<<"Ok";
    getch();
}
void strprint(char *x)
{
    while(*x!='\0')
    {
        cout<<*x<<endl;
        *x++;
    }
}
```

*****-----*****

Q: Write a program to find out the length of a string by using pointers.

```
#include<iostream.h>
#include<conio.h>
#include<stdio.h>
int len(char *x);
void main()
{
    clrscr();
    char st[25];
    cout<<"Enter Any String:";
    gets(st);
    cout<<"Length Of String Is:"<<len(st)<<endl;
    cout<<"Ok";
    getch();
}
int len(char *x)
{
    int c=0;
    while(*x!='\0')
    {
        c++;
        *x++;
    }
    return (c);
}
```

*****-----*****

Q:Write a program to copy one string to another string by using pointers.

```
#include<iostream.h>
#include<conio.h>
#include<stdio.h>
void copystr(char *tar,char *src);
void main()
{

```



```

clrscr();
char st1[25],st2[25];
cout<<"Enter First String:";
gets(st1);
copysttr(st2,st1);
cout<<"\nFirst String Is:"<<st1;
cout<<"\nCopied String Is:"<<st2<<endl;
cout<<"Ok";
getch();
}

```

```

void copysttr(char *tar,char *src)
{
    while(*src!='\0')
    {
        *tar++=*src++;
        *tar='\0';
    }
}

```

*****-----*****

Q Write a program to combine two strings by using pointers.

```

#include<iostream.h>
#include<conio.h>
#include<stdio.h>
void combine(char *res,char *s1, char *s2);
void main()
{
    clrscr();
    char st1[25],st2[25],catstr[50];
    cout<<"Enter First String:";
    gets(st1);
    cout<<"Enter Second String:";
    gets(st2);
    combine(catstr,st2,st1);
    cout<<"\nCombined String Is:"<<catstr<<endl;
    cout<<"Ok";
    getch();
}

```

```

void combine(char *res,char *s1, char *s2)
{
    while(*s1!='\0')
        *res++=*s1++;
    while(*s2!='\0')
        *res++=*s2++;
    *res='\0';
}

```

*****-----*****

Q: Write a program to search a word within a string.

```

#include<iostream.h>
#include<string.h>
#include<stdio.h>
#include<conio.h>
void main()
{
    char *tmp;
    char WordToSearch[20];
}

```

```

char TextString[80];
clrscr();
cout<<"Enter Text String:\n";
gets(TextString);
cout<<"\nEnter Word:\n";
cin>>WordToSearch;
tmp = strstr(TextString,WordToSearch);
if (tmp != NULL)
cout<<"\n\nword \"<<WordToSearch<<\" is presnt in the string\n";
else
cout<<"\n\nword \"<<WordToSearch<<\" is not presnt in the string\n";
getch();
}

```

*****-----*****

File Handling

Q:To write names and ages of ten persons into a data file on the disk, the program is written as:

```

#include<iostream.h>
#include<fstream.h>
#include<conio.h>
void main()
{
    char name[15];
    int age,i=1;
    ofstream data("records.dat");
    while(i<=10)
    {
        clrscr();
        cout<<"Enter Record #"<<i<<endl;
        cout<<"Enter Name:    ";
        cin>>name;
        cout<<"Enter Age:      ";
        cin>>age;
        data<<name<<"\t"<<age<<endl;
        i++;
    }
}

```

*****-----*****

Q:The following program reads data from the data file "records.dat" created by the previous program.

```

#include<iostream.h>
#include<fstream.h>
#include<stdlib.h>
#include<conio.h>
void main()
{
    char name[15];
    int age,i=1;
    ifstream rec("records.txt");
    clrscr();
    if(!rec)
    {
        cerr<<"File Opening error"<<endl;
        exit(1);
    }
}

```

```
rec>>name>>age;
while (rec)
{
    cout<<"Record #"<<i++<<":\t";
    cout<<name<<"\t"<<age<<endl;
    rec>>name>>age;
}
getch();
}
```

*****-----*****

*****-----*****

The END

*****-----*****